

18. (Amended) Glass bending and tempering apparatus comprising: a first deformable platen for receiving a heated glass sheet and including a plurality of first longitudinally extending quench tubes having quench openings that move with the tubes during the deformation of the first platen; a second deformable platen having a second plurality of longitudinally extending quench tubes having quench openings that move with the second plurality of tubes during deformation of the second platen; the quench openings of the first deformable platen and the quench openings of the second deformable platen opposing each other when a bent glass sheet is therebetween; and means to supply quenching gas through the quench openings to temper such bent glass sheet.

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19. (Amended) Glass bending and tempering apparatus as in claim 18 further comprising: an actuator connected to one of the plurality of longitudinally extending quench tubes for deforming the platen from a planar shape to a bent shape.

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20. (Amended) Apparatus for tempering glass sheets comprising:

quench means including upper quench tubes arranged in longitudinal rows which are spaced apart across the width of the quench section,

the quench means also including lower quench tubes arranged in longitudinal rows which are spaced apart across the width of the quench section,

C- each longitudinal row of lower quench tubes being supported on a support that extends lengthwise in the quench section,

quench rollers in the quench section rotatably mounted in longitudinal rows between pairs of lower quench tubes for transporting the glass sheet in the quench section,

power means connected to the quench rollers for rotating them,

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means connected to the lower support in the quench section for moving the lower support to change the vertical position of the lower quench tubes and the quench rollers to a quench position where the lower quench tubes and the quench rollers have the same contour as the bent glass sheet, and

means connected to the upper support in the quench section for moving the upper support to change the vertical position of the upper quench tubes to a quench position where the upper quench tubes have the same contour as the bent glass sheet.

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21. (New) An oven for use in a glass bending apparatus comprising:

a heating section;

a bending section adjacent to the heating section;

means in the oven for heating a glass sheet;

the bending section having a plurality of mini-rolls arranged in longitudinal rows spaced apart across the width of the oven for conveying the glass sheet in the bending section;

power means connected to the mini-rolls for rotating them; and

means connected to each longitudinal row of mini-rolls to change the vertical position of the mini-rolls to a glass bending position where the vertical position of each longitudinal row of mini-rolls across the width of the oven has the contour of a desired bend for bending the hot, softened glass sheet to the desired contour.

22. (New) Apparatus for bending glass sheets, comprising:

an oven for receiving glass sheet and for heating the glass sheet to a hot, softened condition, the oven having a heating section and a bending section adjacent to the heating section;

means in the oven for heating a glass sheet;

20 the bending section having a plurality of mini-rolls arranged in longitudinal rows spaced apart across the width of the oven for conveying the glass sheet in the bending section;

power means connected to the mini-rolls for rotating them;

means connected to each longitudinal row of mini-rolls to change the vertical position of the mini-rolls to a glass bending position where the vertical position of each longitudinal row of mini-rolls across the width of the oven has the contour of a desired bend for bending the hot, softened glass sheet to the desired contour; and

means for quenching the bent glass sheet.

30 23. (New) The apparatus of claim 22, wherein the quench means includes a quench section comprising:

upper quench tubes arranged in longitudinal rows;
lower quench tubes arranged in longitudinal rows;

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means connected to the upper and lower rows of quench tubes for changing the vertical position of each row of quench tubes to a quench position where the upper quench tubes have the same contour as the top surface of the bent glass sheet and the lower quench tubes have the same contour as the bottom surface of the bent glass sheet.

24. (New) The apparatus of claim 22, wherein the quench means includes a quench section comprising:

upper quench tubes arranged in longitudinal rows;
lower quench tubes arranged in longitudinal rows;

and

means connected to at least one of the upper and lower rows of quench tubes for changing the vertical position of each row of quench tubes to a quench position where the upper quench tubes have the same contour as the top surface

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of the bent glass sheet and the lower quench tubes have the same contour as the bottom surface of the bent glass sheet.

25. (New) A method for bending glass sheets, comprising:

providing an oven having a heating section
and a bending section with mini-rollers;
heating the glass sheet in the heating section of
the oven to a hot, softened, bendable condition;
bending the hot, softened glass sheet in the
bending section by changing the vertical position of the
mini-rollers supporting the glass sheet to a glass bending
position where the vertical position of the mini-rollers
across the width of the oven has a contour which conforms to
the contour of a desired glass bend;
allowing the softened glass sheet to bend to the
desired bent shape of the mini-rollers; and
quenching the bent glass sheet.

Remarks

Claims 1-25 are now in the application. Claims 17-20 have been amended. Claims 21-25 have been added. Claims 20-23 and 25 are copied in all material respects from U.S. Patent No. 5,009,693. Claims 20-23 and 25 in this reissue application correspond respectively to interfering claims of the '693 patent as follows: claim 20 to claim 5, claim 21 to claim 10 (with immaterial deletions), claim 22 to claim 12 (with immaterial deletions), claim 23 to claim 13 and claim 25 to claim 14 (with immaterial deletions) of the '693 patent. Claim 24 is patterned after claim 23.

Claims 17 through 20 were underlined throughout when filed with the reissue application. Thereafter, claims 17 through 20 were not underlined, as amended. In response to the Examiner's objection, Applicants have resubmitted